

KENTUCKY FORESTS

*Research of Forest
Archives*



Eastern Unit

FOREWORD

More than a decade has elapsed since the last comprehensive inventory of Kentucky's woodlands. Timber cutting, tree growth, and shifts in land use since then have led to several important changes in the timber resource. The demand for forest products has also changed. Recent emphasis on rural area development has made the necessity for fresh statistics even more pressing. Local communities and forest-based industries are finding a greater need for up-to-date data as they plan for future economic development. So, there is an urgent need for new information.

To meet these needs, the Division of Forestry of the Kentucky Department of Natural Resources and the U. S. Forest Service planned and conducted a new inventory of Kentucky forests. The field work was completed in 1964.

The McSweeney-McNary Forest Research Act of 1928 authorizes the Forest Service to complete a statewide forest inventory of Kentucky at approximate 10-year intervals. This is part of the nationwide program of maintaining a current account of our timber resources. The State of Kentucky appropriated \$120,000 for the current survey. This contribution, supplementing the Federal funds available for a regular survey, made it possible to intensify the inventory. As a result, we can provide the kind of detailed information needed for making long-range plans to meet future demands and in addition help local communities and forest-based industries make more efficient use of the forest resource.

Clarence D. Chase, Leader of the Survey Project at the Lake States Forest Experiment Station, directed the inventory. Field survey units of the Kentucky Division of Forestry and the Lake States Station collected the basic inventory data. The Lake States Station computed and tabulated the final statistics and the Central States Forest Experiment Station analyzed and reported the results.

Other organizations made important contributions to the new inventory. Personnel of the Eastern Region of the U.S. Forest Service inventoried and provided statistics for the Cumberland National Forest. The Northeastern Forest Experiment Station assisted with the computation of National Forest data. The Tennessee Valley Authority provided men and equipment to assist in surveying areas of their interest. The Soil Conservation Service and the Agricultural Stabilization and Conservation Service provided the field crews with office space and up-to-date aerial photographs. The Kentucky Department of Highways took and provided aerial photographs for parts of eastern Kentucky where no recent photographs were available. The University of Kentucky and Kentucky Department of Commerce took an active part in planning and gave valuable assistance with problems that evolved during the course of the inventory. Our thanks go to all these organizations and others who contributed.

For sampling and reporting purposes, the State was divided into seven survey units (frontispiece). This report covers the Eastern Unit. Additional information regarding the survey can be obtained from either the Division of Forestry, Kentucky Department of Natural Resources or the Central States Forest Experiment Station.

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KENTUCKY FORESTS

Eastern Unit

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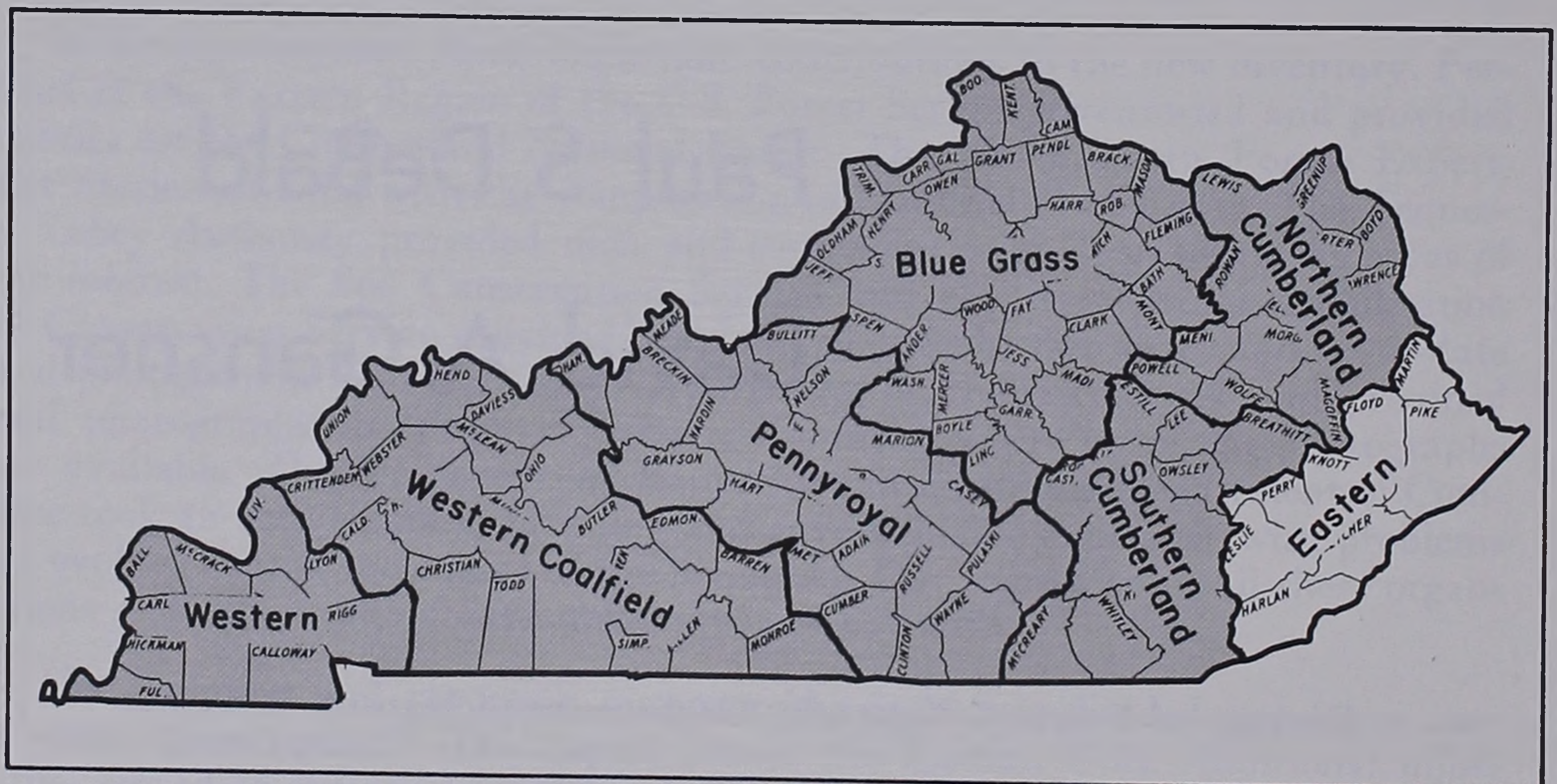
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CONTENTS

page

1	The timber resource has changed
5	Timber industries and drain
6	The current balance between growth and cut
7	More timber can be harvested
9	Appendix
9	Forest survey procedure
9	Accuracy of survey estimate
11	Definition of terms
16	Principal commercial tree species of Kentucky
19	Statistical tables



Location of the Eastern Unit in Kentucky.

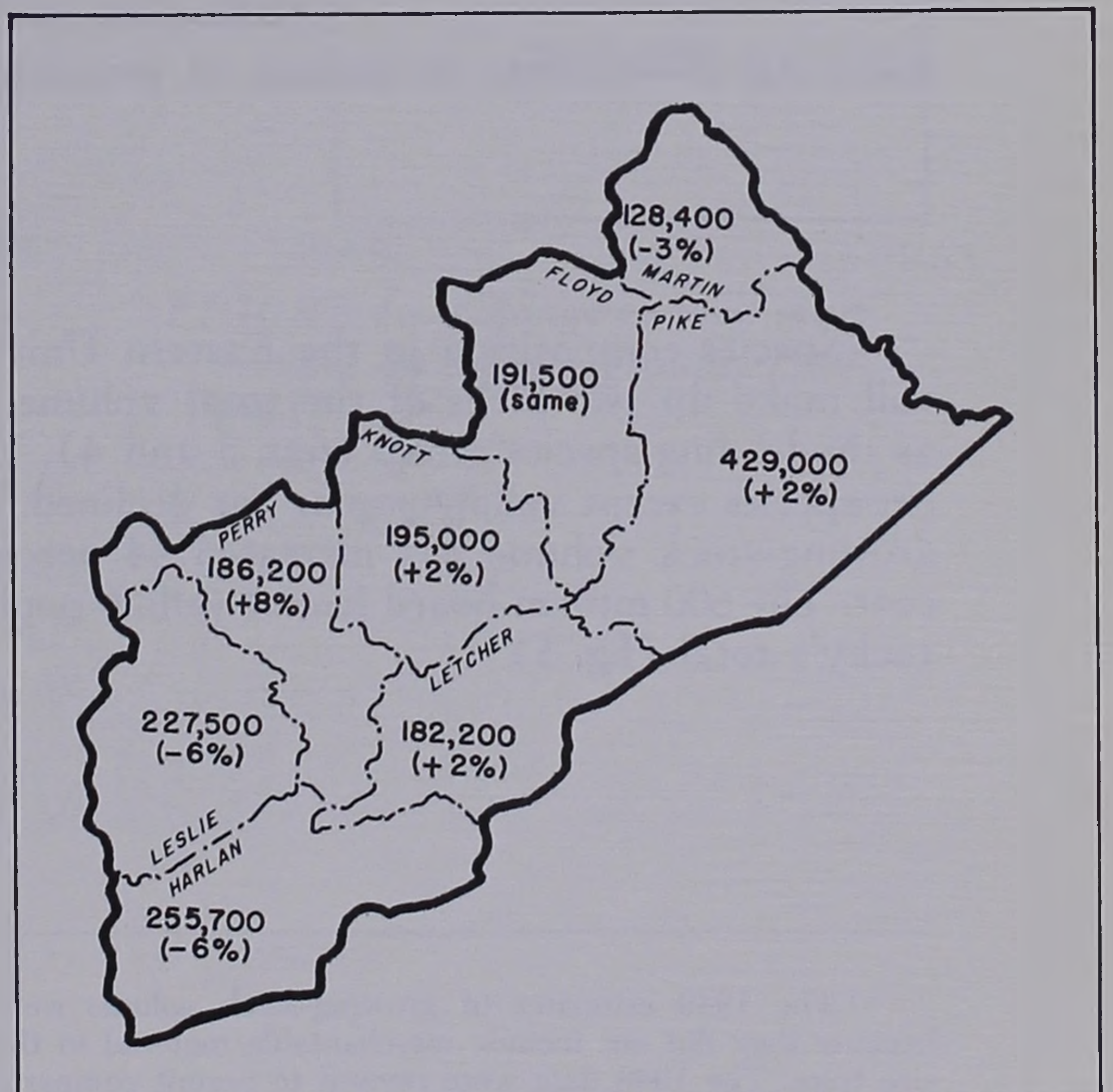
THE TIMBER RESOURCE HAS CHANGED

The eight-county Eastern Survey Unit is the most heavily forested area of Kentucky. Woodland occupies more than 85 percent of the land area and no county is less than 75 percent forested. Practically all of the 1.8 million acres of forest land in the Region is considered commercial; i.e., it is capable of producing commercial timber crops and not reserved from cutting.

There has been little change in the acreage and distribution of forest since the previous survey in 1949. Commercial forest land as a whole decreased less than 1 percent and changed by as much as 8 percent in only one county (fig. 1). But, cutting and shifts in land use have altered the characteristics of the forest. Timber harvesting has led to a reduction in the number of large trees in stands throughout the Region. At the same time, restocking has occurred on previously timbered areas that were cleared and strip mined for coal, and on abandoned sub-marginal farm lands. As a result, the average size of timber is smaller. There are more seedling and sapling stands and fewer sawtimber and poletimber stands. And the average volume of merchantable timber per forest acre is lower now than in 1949.

Pine forest land increased sharply with most of the increase in young stands. However, pine stands still account for less than 2 percent of the forest area. Hardwood forests, composed mainly of oak, hickory, yellow-poplar, and beech predominate.

FIGURE 1.—Area of commercial forest land by county, 1963 and percentage change since 1949.



Since 1949, the volume of growing stock has decreased.¹ A lot of this reduction was in mature and overmature timber where cutting and mortality have been concentrated (fig. 2). Even so, a high proportion of the Region's volume is still in large trees. Almost one-third of the 1.2 billion cubic feet of growing stock is in trees 17.0 inches d.b.h. and larger, and 20 percent of the sawtimber is in trees 23.0 inches d.b.h. and larger. Volume in the smaller diameters increased rapidly between inventories and if these smaller trees are managed to maturity they could more than compensate for the recent declines in large sawtimber.

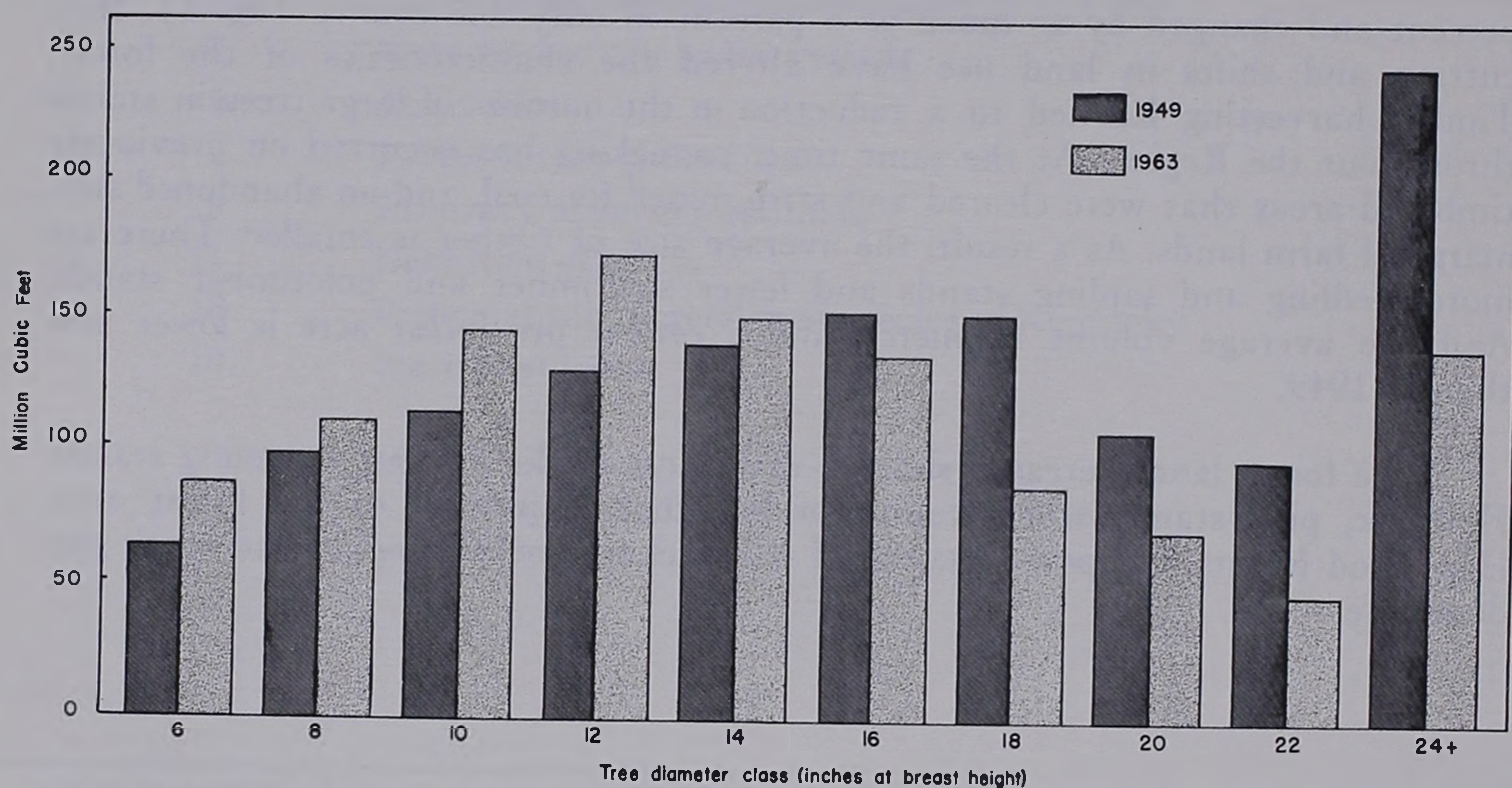


FIGURE 2.—Change in volume of growing stock by diameter class, 1949-1963.

Species composition in the Eastern Unit has also changed. While the oaks still make up two-fifths of the total volume, red oaks have replaced white oaks as the leading species group (figs. 3 and 4). Volume of most of the important timber species except yellow-poplar has declined. Despite heavy cutting, yellow-poplar growing-stock volume has increased 44 percent and sawtimber volume 10 percent. The 600 million board feet of yellow-poplar in the Unit is 27 percent of Kentucky's total (fig. 5).

¹ The 1949 estimates of growing-stock volume were not directly comparable with those of 1963 because they did not include merchantable material in the upper-stem portion of hardwood sawtimber-size trees. The 1949 data were revised to permit comparisons.

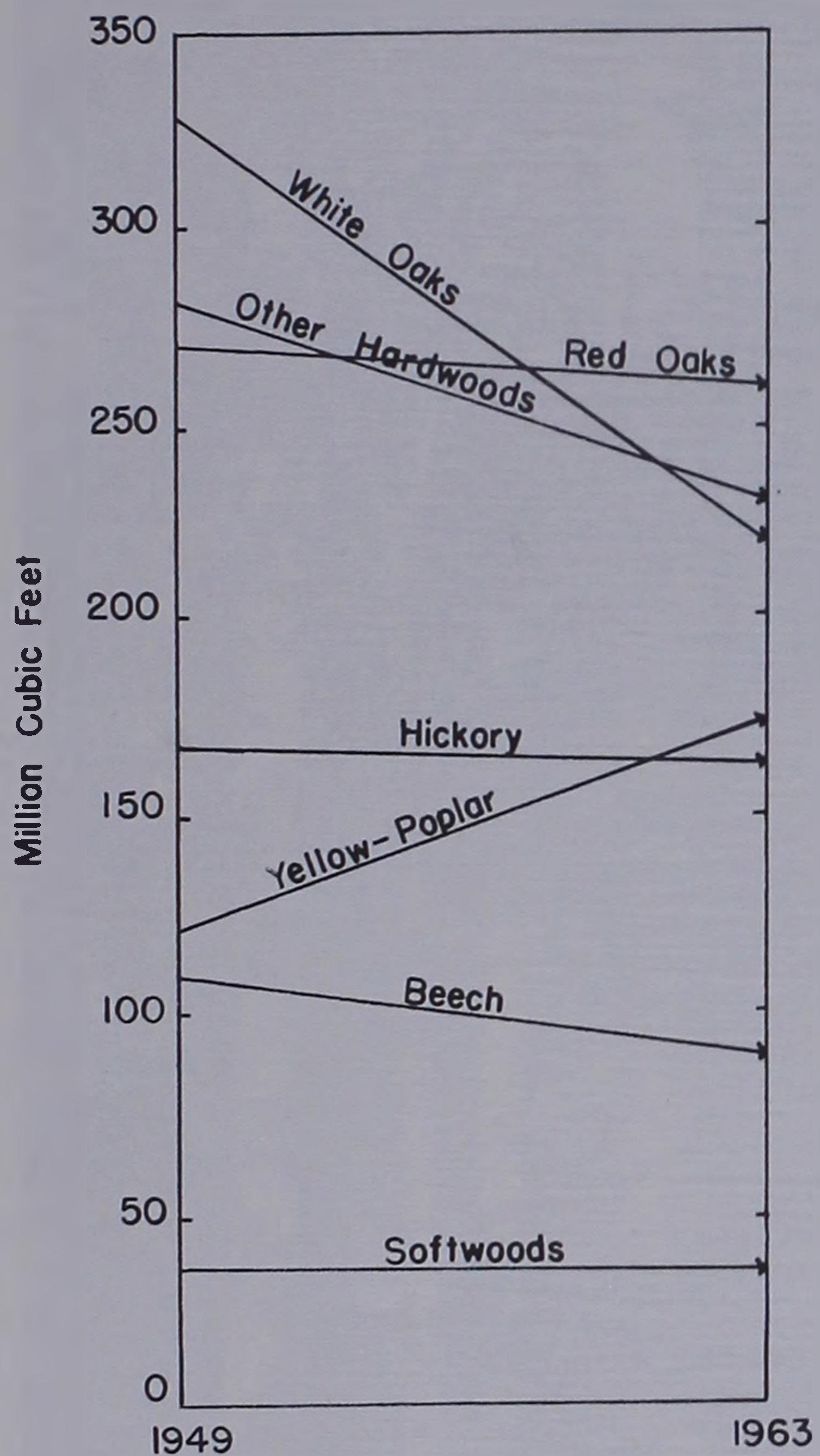


FIGURE 3.—Change in growing stock volume by species groups, 1949-1963.

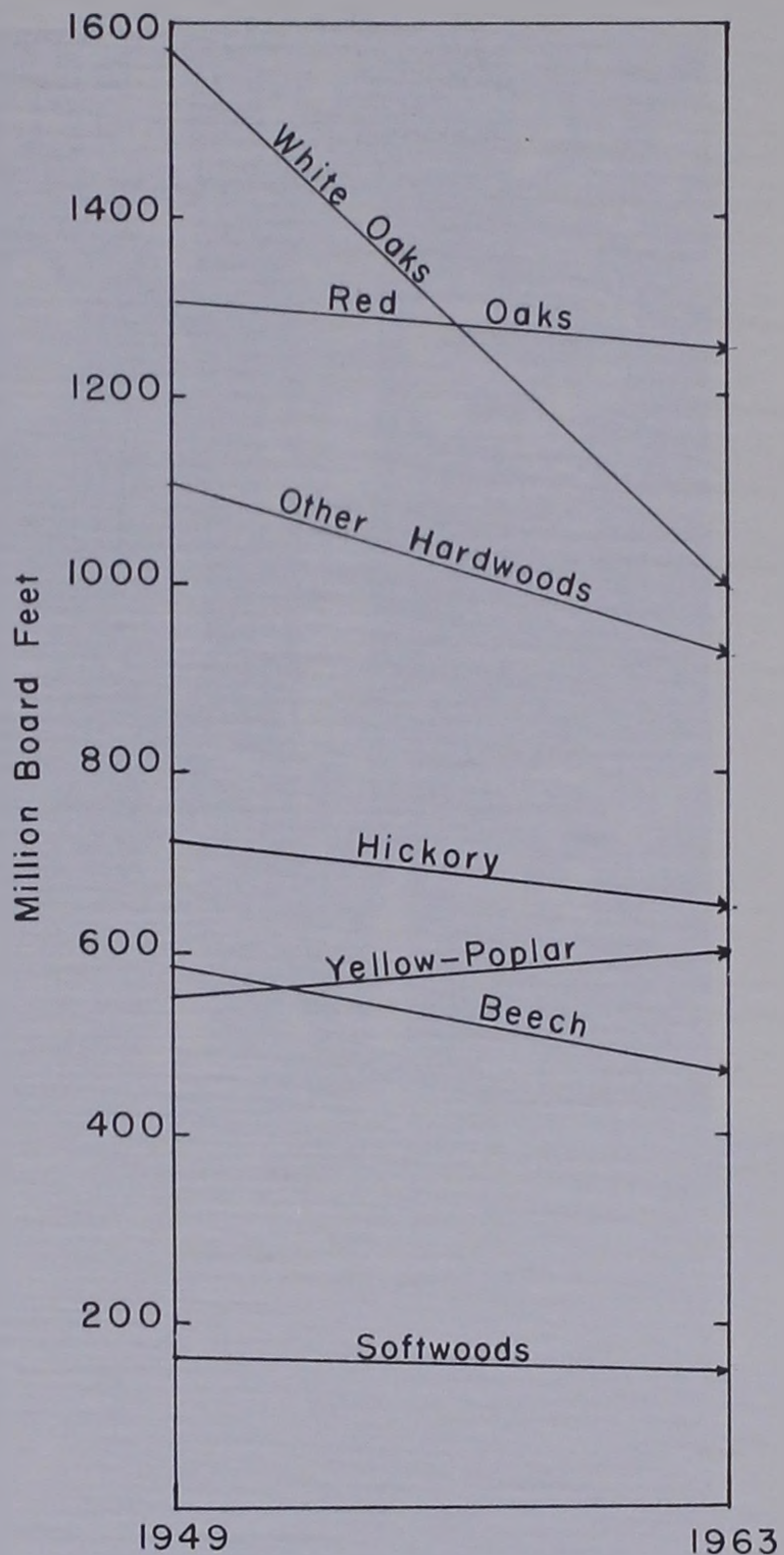


FIGURE 4.—Change in sawtimber volume by species groups, 1949-1963.



FIGURE 5.—The volume of yellow-poplar, one of the most important timber species in the Region, has increased sharply since 1949.

TIMBER INDUSTRIES AND DRAIN

More than 50 primary wood-using plants are located in the Eastern Unit of Kentucky (fig. 6). Most of them are sawmills producing less than one million board feet of lumber annually. During 1962, the Region's sawmills produced about 40 million board feet of lumber (fig. 7).

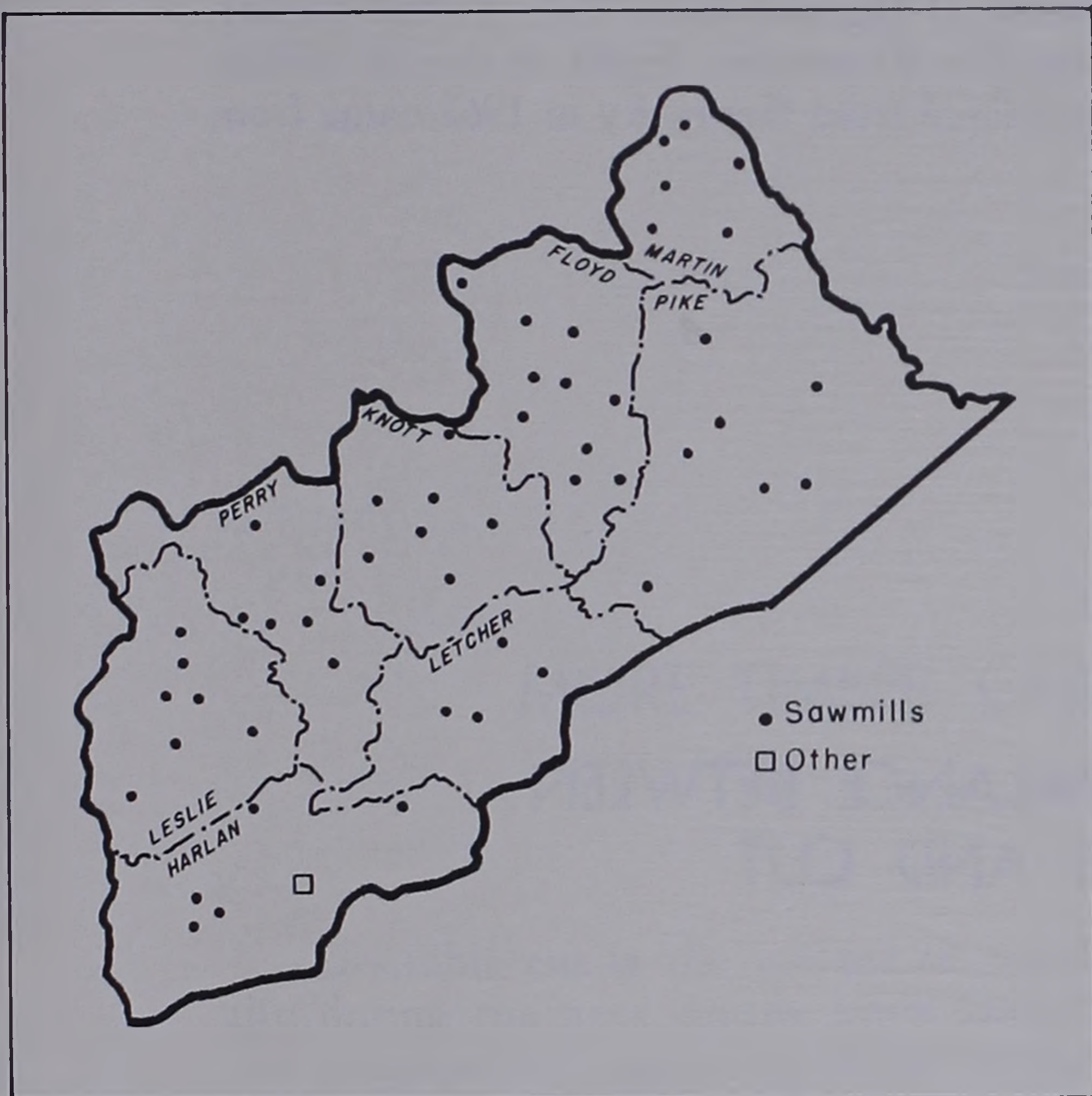


FIGURE 6.—Location of primary wood-using industries, 1963.

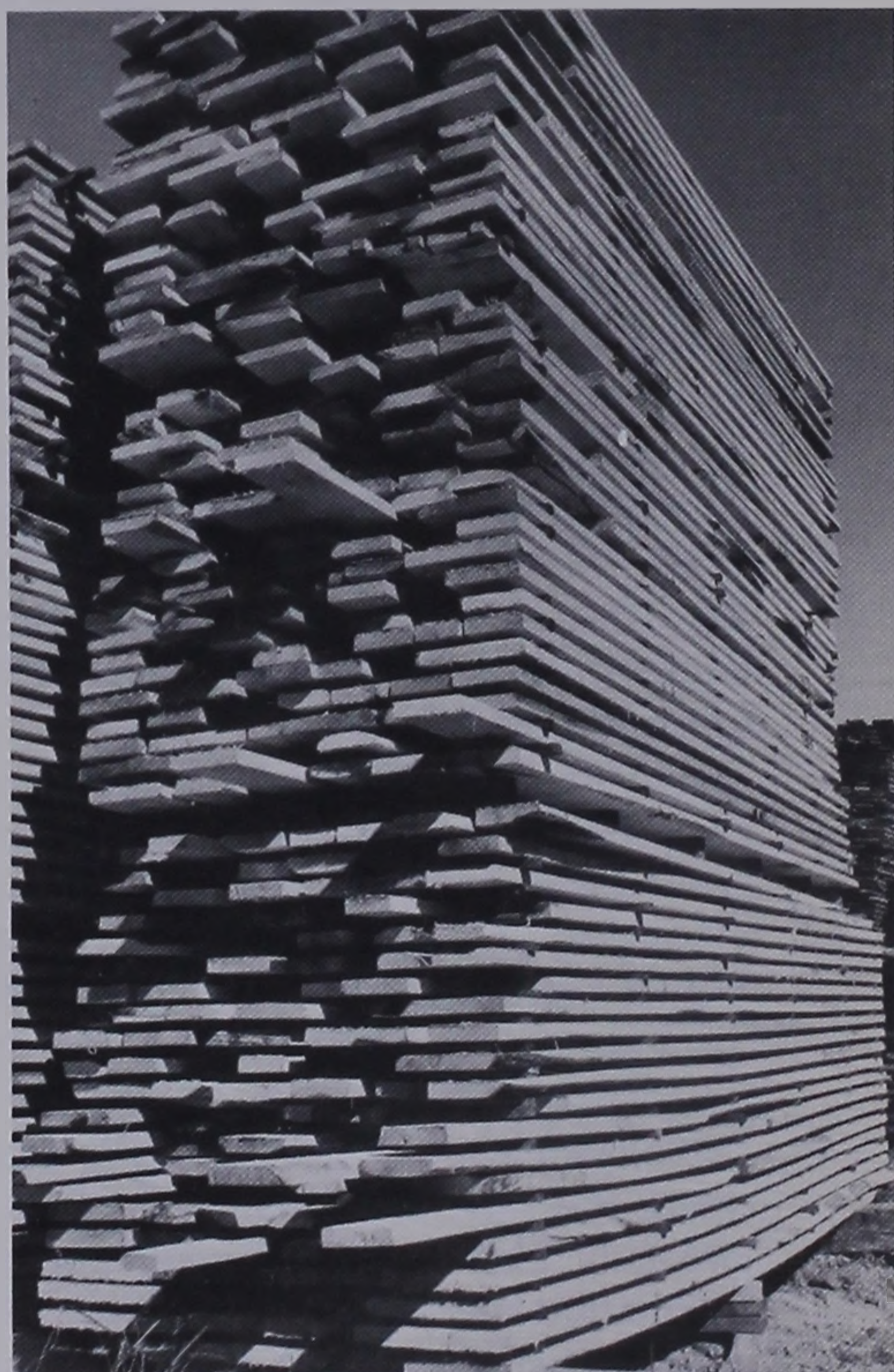


FIGURE 7.—Most of the timber cut from the Region is sawn into lumber.

More than 11 million cubic feet of growing stock were harvested from the Region in 1962. This was about 9 percent of the total timber cut from Kentucky. Most of the cut was from sawtimber-size trees; the sawtimber harvest was more than 60 million board feet. The harvest of poletimber volume was very small—only about 0.5 percent of the poletimber inventory. Some small timber is cut for pulpwood, mine timbers, fenceposts, and fuel, but this resource remains virtually untapped because of limited markets.

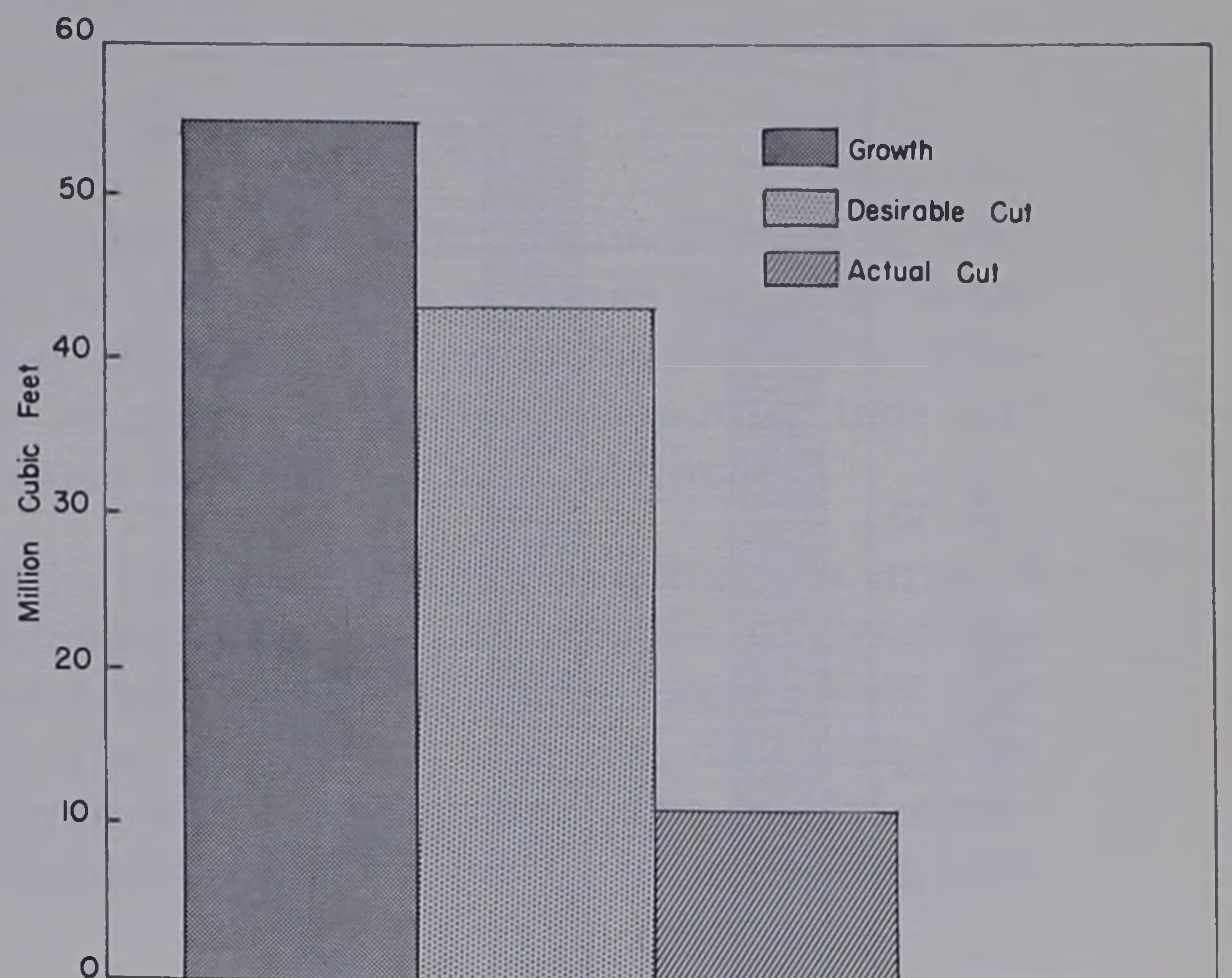
Oak species included about 40 percent of the sawtimber cut. Yellow-poplar, hard maple, and beech accounted for another 40 percent. Eight of the 18 million board feet of hard maple sawtimber harvested from Kentucky in 1962 came from the Eastern Unit.

THE CURRENT BALANCE BETWEEN GROWTH AND CUT

The net annual growth in the Eastern Unit in 1963 was 55 million cubic feet for growing stock and 273 million board feet for sawtimber. This amounts to growth percents of 4.7 for growing stock and 5.4 for sawtimber before allowances are made for cutting. The average growth of 30.5 cubic feet per acre is far below the Unit's potential. Almost 90 percent of the timberland is capable of producing more than 50 cubic feet per acre per year and over half of it could produce more than 85 cubic feet per acre per year (potential expressed in terms of mean annual growth at culmination of increment in fully stocked stands of desirable trees). But, at present, less than half of the stands in the Eastern Unit are well stocked with growing-stock trees. Further, only 8 percent of the forest land is well stocked with desirable growing-stock trees, or has the prospect of becoming so without treatment. Significant increases in productivity cannot be expected until stocking improves.

Even though current growth is below potential, it is almost five times larger than the current timber cut (fig. 8). Currently, the growth-to-cut surplus is increasing both growing-stock volume and sawtimber volume by about 4 percent annually. However, most of the growth is in poletimber and small sawtimber trees while most of the cut is from larger timber.

FIGURE 8.—Growth, desirable cut, and actual cut of growing stock, 1963.



MORE TIMBER CAN BE HARVESTED

Desirable cut is the volume of merchantable timber that can be cut annually during the next decade while maintaining a healthy balance of age classes and progressively improving forest productivity. The long-run goal of the desirable cut is a regulated forest producing a sustained yield of wood for the manufacture of consumer goods.

In terms of available wood supplies, the opportunity for expanding forest industries in the Region is excellent. The desirable cut of growing stock is estimated at 43 million cubic feet, 32 million more than the current actual cut (fig. 8). The desirable cut of sawtimber is 211 million board feet, almost 4 times the actual cut. These surpluses, which are greater than in any other unit of Kentucky, could support several additional wood-using plants.

The gap between desirable and actual cut varies with individual species and tree sizes. Black walnut and the yellow pines are the only major species for which the actual cut exceeds the desirable cut. All other species can sustain more cutting. An additional 65 million board feet of oak sawtimber could be harvested annually (fig. 9). The ratio of desirable cut to actual cut is largest for little-used species such as hickory, soft maple, blackgum, ash, and black oak. More than 6 times as much hickory sawtimber could be cut annually. And, five and one-half times as much hardwood poletimber volume could be harvested. The addition of any new firms that could profitably use this kind of timber would benefit the timber resource as well as the local economy (fig. 10).

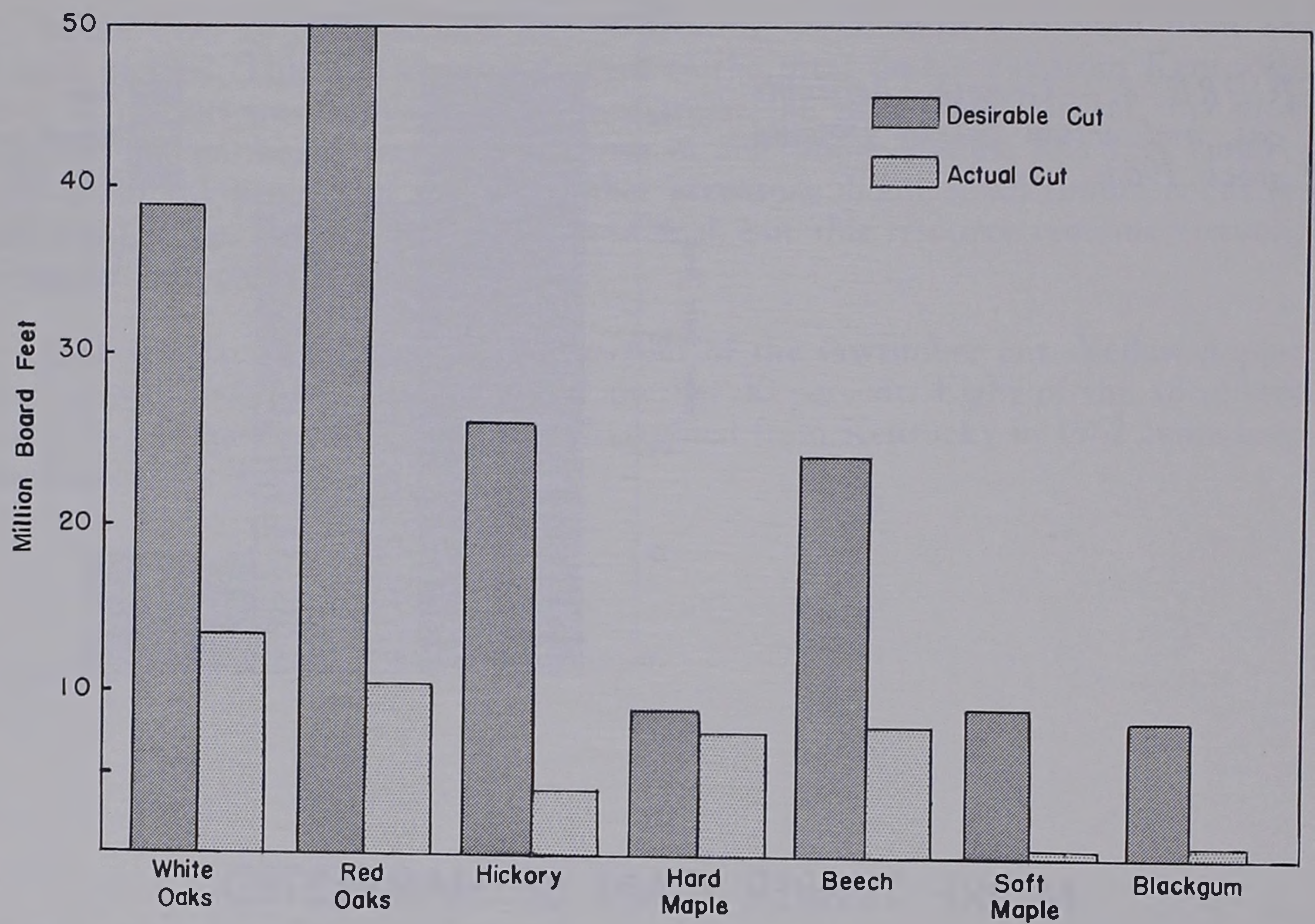


FIGURE 9.—Desirable cut and actual cut of sawtimber for selected species, 1963.

FIGURE 10.—There are few markets for small and low-grade timber; a large surplus of this kind of material is available for cutting.



APPENDIX

Forest Survey Procedure

The resource statistics presented in this report were obtained from a sampling survey. The survey was designed to yield reliable statistics for large areas. It combined aerial photo interpretation and field work to minimize costs. Electronic data-processing machines were employed to reduce computing time and generate more usable statistics than could be done by hand methods.

To attain specific levels of statistical accuracy, triple sampling was used. A large number of points were first examined on aerial photographs to determine the proportions of forest and nonforest land. One-fourth of the forest points were stereoscopically classified as to forest type, stand size, stocking, and site. One-twelfth of these points were in turn examined on the ground. The ground classification provided a check on photo classification and a means of improving estimates of forest area.

At each forest ground-check point a plot was established. Trees were classified and measured as a basis for estimating timber volume, growth, mortality, and quality. Ownership was determined for each plot.

Timber-cut information was based on forest-industry production records for 1962, on stump counts at forest-inventory plots, cutting records from large owners, and utilization factors based on a logging-residue study.

Accuracy of Survey Estimate

Estimates of forest area and timber volume are subject to two kinds of errors: (1) nonsampling errors caused by mistakes in judgment, recording of measurements, or in calculations, and (2) sampling errors inherent in statistical work.

Nonsampling errors are not measurable and cannot be shown. They are avoided as much as possible through training of personnel, close supervision, and careful checking of all phases of the work.

Sampling errors are subject to the laws of chance and may be estimated by statistical methods. These errors are held to acceptable levels commensurate with the values involved and funds available by adjusting the survey design and the intensity of the sample. With a probability of two out of three (that is, relatively good) the accompanying table shows the accuracy of the data presented in this report. The sampling error of a survey is less for a large class or block than for a smaller class or other subdivision. Some of the resource statistics presented in this report have such large errors that it would be unwise to use them alone—but if they are combined with other figures the error may be reduced enough to warrant their use. Weak figures are shown to allow various combinations of data.

Guides for judging accuracy by size of area
and by volume of growing stock and sawtimber

Commercial forest land	Standard error of sampling
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<u>Acres</u>	<u>Percent</u>
1,795,500	1.0
1,000,000	1.3
500,000	1.9
300,000	2.4
100,000	4.2
50,000	6.0
30,000	7.7
10,000	13.4
5,000	18.9
3,000	24.3

Growing stock volumes	Standard error of sampling	Sawtimber volumes	Standard error of sampling
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<u>Thousand cu. ft.</u>	<u>Percent</u>	<u>Thousand bd. ft.</u>	<u>Percent</u>
1,176,320	2.6	5,045,800	3.2
1,000,000	2.9	1,000,000	7.1
500,000	4.0	500,000	10.1
300,000	5.2	300,000	13.0
100,000	9.1	100,000	22.5
50,000	12.8	50,000	31.8
30,000	16.6	30,000	41.1
10,000	28.7	10,000	71.2
5,000	40.6		

The occurrence of a (—) in the statistical tables of this report indicates one of two things:

(1) No units were measured by the inventory.

(2) The quantity of data measured was insignificant and did not warrant reporting.

Definition of Terms

Land and Forest Area

Gross area. — The entire area of land and water as determined by the Census Bureau.

Land area. — The area of dry land and land temporarily or partially covered by water such as marshes, swamps, and flood plains; streams, and sloughs less than $\frac{1}{8}$ mile wide; and lakes, reservoirs, and ponds smaller than 40 acres.

Forest land. — Land at least 10 percent stocked by forest trees of any size, or formerly having such tree cover and not currently developed for nonforest use. Does not include urban or thickly settled residential and resort areas, city parks, orchards, farmsteads, improved roads, or land developed and maintained for nonforest use by fencing, seeding, and so forth. The minimum area for classification of forest land or classes of forest land was 1 acre. Roadside, streamside, and shelterbelt strips of timber having a crown width of at least 120 feet qualified as forest land. Unimproved roads and trails, streams, and clearings in forest land were included as forest if less than 120 feet wide.

Commercial-forest land. — Forest land that is producing or capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation.

Noncommercial-forest land. — Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions; and productive, public-forest land withdrawn from commercial timber use through statute or administrative regulation.

Ownership

Public. — Federal, state, county, and municipal lands.

Forest industry. — Land owned by companies or individuals operating wood-using plants.

Farmer and miscellaneous private. — All privately owned land except forest industry land.

Forest Types

Forest type. — A classification of forest land based upon species composition considering all live trees.

Southern pine. — Forests in which 50 percent or more of the stocking is short-leaf or other southern yellow pines, singly or in combination.

Redcedar-hardwoods. — Forests in which 50 percent or more of the stocking is hardwoods but in which redcedar makes up at least 25 percent of the stocking. Included also are those areas where redcedar makes up most of the stocking.

Oak-pine. — Forests in which 50 percent or more of the stocking is hardwoods (usually upland oaks) but in which southern pine makes up at least 25 percent of the stocking.

White oak. — Forests in which 50 percent or more of the stocking is white oak, except stands that classify as redcedar-hardwoods or oak-pine.

Oak-hickory. — Forests in which 50 percent or more of the stocking is upland oaks or hickories, singly or in combination, except stands that classify as oak-pine, redcedar-hardwoods, or white oak.

Central mixed hardwoods. — Forests in which 50 percent or more of the stocking is a combination of hardwood species, principally, yellow-poplar, maple, beech, basswood, black walnut, elm, and northern red oak, except stands that classify as redcedar-hardwoods, oak-pine, oak-hickory, maple-beech, or elm-ash-cottonwood.

Maple-beech. — Forests in which 50 percent or more of the stocking is maple or beech, singly or in combination, except stands that classify as redcedar-hardwoods or oak-pine.

Elm-ash-cottonwood. — Forests in which 50 percent or more of the stocking is elm, ash, or cottonwood, singly or in combination except stands that classify as redcedar-hardwoods or oak-pine.

Stand-Size Classes

Stand-size class. — A classification of forest land based on the predominant size of timber present—sawtimber, poletimber, or seedlings and saplings.

Sawtimber stands. — Stands at least 10 percent stocked with growing-stock trees, with half or more of this stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands. — Stands at least 10 percent stocked with growing-stock trees, with half or more of this stocking in sawtimber and/or poletimber trees, and with poletimber stocking exceeding that of sawtimber.

Seedling-sapling stands. — Stands at least 10 percent stocked with growing-stock trees and with seedlings and/or saplings comprising more than half of this stocking.

Nonstocked areas. — Commercial-forest land less than 10 percent stocked with growing-stock trees.

Stocking Classes

Stocking class. — A classification of commercial-forest land based on the percent of area occupied by growing-stock trees. *Growing-stock trees* include all live trees except culls.

Well stocked. — Stands that are 70 percent or more stocked with growing-stock trees.

Medium stocked. — Stands that are 40 to 69 percent stocked with growing-stock trees.

Poorly stocked. — Stands that are from 10 to 39 percent stocked with growing-stock trees.

Nonstocked. — Areas of commercial-forest land not qualifying as sawtimber, poletimber, or seedling and sapling stands. These areas may contain some volume but less than 10 percent of the growing space is effectively utilized by growing stock.

Area-Condition Classes

A classification of commercial-forest land based upon stocking by desirable growing-stock trees and conditions affecting current and prospective timber growth. *Desirable growing-stock trees* are those that have no serious defects in quality limiting present or prospective use. They have relatively high vigor and contain no pathogens that may result in death or serious deterioration before rotation age. These are the trees that would be favored in silvicultural operations.

Desirable. — Areas 70 percent or more stocked with desirable trees.

Moderate and favorable. — Areas 40 to 70 percent stocked with desirable trees and with 30 percent or less of the area having other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Moderate and unfavorable. — Areas 40 to 70 percent stocked with desirable trees and with more than 30 percent of the area having other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Poor but favorable. — Areas less than 40 percent stocked with desirable trees and with 30 percent or less of the area having other trees and/or inhibiting vegetation or surface conditions that prevent occupancy by desirable trees.

Poor and unfavorable. — Areas less than 40 percent stocked with desirable trees and with more than 30 percent of the area having other trees and/or inhibiting vegetation or surface conditions that prevent occupancy by desirable species.

Volume Classification

Growing-stock volume. — Cubic-foot volume of sound wood in the bole of sawtimber and poletimber trees from the stump to a minimum 4-inch-top diameter outside bark or to the point where the central stem breaks into limbs.

Sawtimber volume. — Net volume of the saw-log portion of live sawtimber trees in board feet, International $\frac{1}{4}$ -inch rule. The saw-log portion extends from stump to a minimum top diameter outside bark of 6 inches for softwoods and 8 inches for hardwoods or to the point where defects reduce saw-log quality below Standard Log Grade 3 or Tie-and-Timber Grade.

Tree-Size Classes

Sawtimber trees. — Live trees of commercial species containing at least an 8-foot saw log. Softwoods must be at least 9 inches and hardwoods at least 11 inches d.b.h. outside bark.

Poletimber trees. — Live trees of commercial species at least 5 inches d.b.h. but smaller than sawtimber size, and of good form and vigor.

Saplings. — Live trees of commercial species 1 to 5 inches d.b.h. and of good form and vigor.

Seedlings. — Live trees of commercial species less than 1 inch d.b.h. that are expected to survive.

Growth

Net annual growth. — The annual change in volume of sound wood in live sawtimber and poletimber trees and the total volume of trees entering these classes through ingrowth less volume losses resulting from natural causes.

Growing-stock growth. — Net annual growth of pole and sawtimber trees in cubic feet.

Sawtimber growth. — Net annual growth of sawtimber trees in board feet, International $\frac{1}{4}$ -inch rule.

Timber Cut

Timber cut from growing stock. — The net cubic-foot volume of sound wood in live sawtimber and poletimber trees cut for forest products during a specified year, including both roundwood products and logging residues.

Timber cut from sawtimber. — The net board-foot volume of live sawtimber trees cut for forest products during a specified year, including both roundwood products and logging residues.

Desirable cut (formerly called allowable cut).—The net volume of live saw-timber and poletimber trees that can be cut annually during the next 10 years in commercial-logging operations while maintaining or increasing growing stock and while effecting a reasonably even distribution of age classes below the rotation age selected for each type. It includes harvest and improvement cuts yielding 3 cords or more per acre, and one-tenth of the entire net volume of stands 10 or more years beyond the rotation age. Desirable cut includes all timber of merchantable size that should be cut from commercial-forest land in order to salvage, rejuvenate, or improve the stands and increase the growth without regard to restraints of ownership, inaccessibility, or the profit motive. Some of this timber may not be available for sale, too hard to get at or too scattered, or of currently unwanted species or quality.

*Rotation ages for saw-log trees in extensively managed stands
by forest-type and site-index classes*

(In years)

Forest type	Site index (50-year height in feet)*						
	40	50	60	70	80	90	100+
Southern pine	120	110	90	--	--	--	--
Redcedar-hardwoods	120	110	90	--	--	--	--
Oak-pine	120	110	90	--	--	--	--
White oak	120	110	90	80	75	70	--
Oak-hickory	120	110	90	80	75	70	--
Central mixed hardwoods	--	110	90	80	75	70	60
Maple-beech	--	100	100	100	100	--	--
Oak-gum-cypress	--	--	--	80	75	70	60
Elm-ash-cottonwood**	--	--	--	80	70	60	60

*Except in the case of cottonwood for which it is total height at 25 years.

** The rotation for cottonwood is half of the age shown.

Miscellaneous Definitions

Site class.—A classification of commercial-forest land based on potential yields in cubic feet per acre of mean annual growth at culmination of increment in fully stocked stands of desirable trees.

D.b.h. (Diameter at breast height).—Tree diameter in inches measured outside the bark at a point 4½ feet above the ground.

Diameter class.—Where data are presented in 2-inch diameter classes, they include diameters from 1.0 inches below to 0.9 inches above the stated midpoint; e.g., trees 5.0 inches to and including 6.9 inches, are included in the 6-inch class.

Principal Commercial Tree Species of Kentucky²

Softwood Species

Cypress (baldcypress)	<i>Taxodium distichum</i> (L.) Rich.
Hemlock (eastern)	<i>Tsuga canadensis</i> (L.) Carr.
Pine group includes —	
Shortleaf pine	<i>Pinus echinata</i> Mill.
Other yellow pines:	
Pitch pine	<i>P. rigida</i> Mill.
Virginia pine	<i>P. virginiana</i> Mill.
White pine (eastern)	<i>P. strobus</i> L.
Redcedar (eastern)	<i>Juniperus virginiana</i> L.

Hardwood Species

Ash	<i>Fraxinus</i> L. species
Basswood	<i>Tilia</i> L. species
Beech (American)	<i>Fagus grandifolia</i> Ehrh.
Birch (yellow)	<i>Betula alleghaniensis</i> Britton
Blackgum	<i>Nyssa</i> L. species
Black walnut	<i>Juglans nigra</i> L.
Cottonwood (eastern)	<i>Populus deltoides</i> Bartr.
Hickory	<i>Carya</i> Nutt. species
Maple (hard) includes —	
Black maple	<i>Acer nigrum</i> Michx. f.
Sugar maple	<i>A. saccharum</i> Marsh.
Maple (soft) includes —	
Boxelder	<i>A. negundo</i> L.
Red maple	<i>A. rubrum</i> var. <i>rubrum</i> L.
Silver maple	<i>A. saccharinum</i> L.
Oak group includes —	
Select red oaks:	
Cherrybark oak	<i>Quercus falcata</i> var. <i>pagodaefolia</i> Ell.
Northern red oak	<i>Q. rubra</i> L.
Shumard oak	<i>Q. shumardii</i> Buckl.
Other red oaks:	
Black oak	<i>Q. velutina</i> Lam.
Pin oak	<i>Q. palustris</i> Muenchh.
Scarlet oak	<i>Q. coccinea</i> Muenchh.
Shingle oak	<i>Q. imbricaria</i> Michx.
Southern red oak	<i>Q. falcata</i> Michx.
Water oak	<i>Q. nigra</i> L.
Willow oak	<i>Q. phellos</i> L.
Select white oaks:	
Bur oak	<i>Q. macrocarpa</i> Michx.
Chinkapin oak	<i>Q. muehlenbergii</i> Engelm.

²The common and scientific names are based on: Little, Elbert L., Jr. CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA). U.S. Dept. Agr. Handb. 41, 472 pp. 1953.

Swamp chestnut oak	<i>Q. michauxii</i> Nutt.
Swamp white oak	<i>Q. bicolor</i> Willd.
White oak	<i>Q. alba</i> L.
Other white oaks:	
Chestnut oak	<i>Q. prinus</i> L.
Overcup oak	<i>Q. lyrata</i> Walt.
Post oak	<i>Q. stellata</i> var. <i>stellata</i> Wangenh.
Sweetgum	<i>Liquidambar styraciflua</i> L.
Yellow-poplar	<i>Liriodendron tulipifera</i> L.
Other hardwoods includes —	
Birch (river)	<i>Betula nigra</i> L.
Buckeye (Ohio)	<i>Aesculus glabra</i> Willd.
Buckeye (yellow)	<i>A. octandra</i> Marsh.
Butternut	<i>Juglans cinerea</i> L.
Cherry (black)	<i>Prunus serotina</i> Ehrh.
Coffeetree (Kentucky)	<i>Gymnocladus dioicus</i> (L.) K. Koch.
Cucumbertree	<i>Magnolia acuminata</i> L.
Dogwood (flowering)	<i>Cornus florida</i> L.
Elm	<i>Ulmus</i> L. species
Hackberry	<i>Celtis occidentalis</i> L.
Honeylocust	<i>Gleditsia triacanthos</i> L.
Locust (black)	<i>Robinia pseudoacacia</i> L.
Mulberry (red)	<i>Morus rubra</i> L.
Osage-orange	<i>Maclura pomifera</i> (Raf.) Schneid.
Persimmon (common)	<i>Diospyros virginiana</i> L.
Sassafras	<i>Sassafras albidum</i> (Nutt.) Nees
Sycamore (American)	<i>Platanus occidentalis</i> L.
Willow (black)	<i>Salix nigra</i> Marsh.

Statistical Tables

The following tables present forest-resource data for the Eastern Unit and each of its 8 counties. Tables 1-7 contain information on land and forest area; tables 8-12 information on numbers of trees and timber volume; and tables 13-18 information on growth, cut, and desirable cut. Data for individual counties are shown in tables 1, 4, 10, 14, and 18.

Table 1. -- Area of land and forest land by counties
Eastern Unit, Kentucky, 1963

County	Gross area*	Land area*	Forest land			Commercial forest as a percent of land area
			All forest	Non- commercial	Commercial	
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Percent</u>
Floyd	257,300	256,700	193,600	2,100	191,500	74.6
Harlan	300,200	300,200	260,600	4,900	255,700	85.2
Knott	227,800	227,800	197,600	2,600	195,000	85.6
Leslie	263,700	263,700	229,500	2,000	227,500	86.3
Letcher	217,000	217,000	185,000	2,800	182,200	84.0
Martin	147,800	147,800	130,100	1,700	128,400	86.9
Perry	219,500	219,500	187,200	1,000	186,200	84.8
Pike	503,000	503,000	434,900	5,900	429,000	85.3
Total	2,136,300	2,135,700	1,818,500	23,000	1,795,500	84.1

*Gross area and land area are from Bureau of Census, 1960. Land area includes 6,600 acres in small bodies of water.

Table 2. -- Area of commercial forest land by ownership and stand-size class
Eastern Unit, Kentucky, 1963

(In acres)

Ownership class	All Stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
Public	40,500	16,400	17,100	5,800	1,200
Forest industry	85,800	78,400	--	7,400	--
Farmer and miscellaneous private	1,669,200	980,000	239,700	446,100	3,400
All ownerships	1,795,500	1,074,800	256,800	459,300	4,600

Table 3. -- *Area of commercial forest land by stocking and stand-size class*
Eastern Unit, Kentucky, 1963

(In acres)

Stocking class (percent)	All stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
70 or more	771,400	546,000	79,200	146,200	--
40-70	849,000	494,200	153,300	201,500	--
10-40	170,500	34,600	24,300	111,600	--
Less than 10	4,600	--	--	--	4,600
All classes	1,795,500	1,074,800	256,800	459,300	4,600

Table 4. -- *Area of commercial forest land by forest type and stand-size class*
Eastern Unit, Kentucky, 1963

(In acres)

ALL COUNTIES

Forest type	All stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
Southern pine	30,400	--	3,800	26,600	--
Redcedar-hardwoods	4,800	--	--	4,800	--
Oak-pine	38,300	21,800	10,200	6,300	--
White oak	13,400	6,200	7,200	--	--
Oak-hickory	775,000	552,400	87,900	134,700	--
Central mixed hardwoods	822,000	415,400	142,600	259,400	4,600
Maple-beech	104,300	77,100	5,100	22,100	--
Elm-ash-cottonwood	7,300	1,900	--	5,400	--
All types	1,795,500	1,074,800	256,800	459,300	4,600

FLOYD COUNTY

Southern pine	3,200	--	200	3,000	--
Redcedar-hardwoods	1,000	--	--	1,000	--
Oak-pine	3,200	1,600	1,300	300	--
White oak	800	700	100	--	--
Oak-hickory	80,400	57,800	8,700	13,900	--
Central mixed hardwoods	91,400	47,700	18,200	24,500	1,000
Maple-beech	11,000	7,400	400	3,200	--
Elm-ash-cottonwood	500	--	--	500	--
All types	191,500	115,200	28,900	46,400	1,000

HARLAN COUNTY

Southern pine	4,400	--	600	3,800	--
Redcedar-hardwoods	500	--	--	500	--
Oak-pine	4,800	2,500	1,400	900	--
White oak	1,500	700	800	--	--
Oak-hickory	121,200	91,300	10,100	19,800	--
Central mixed hardwoods	108,000	54,000	17,400	35,800	800
Maple-beech	14,500	11,400	400	2,700	--
Elm-ash-cottonwood	800	--	--	800	--
All types	255,700	159,900	30,700	64,300	800

Table 4. -- *Area of commercial forest land by forest type and stand-size class*
Eastern Unit, Kentucky, 1963 -- Continued

(In acres)

KNOTT COUNTY

Forest type	All stands	Saw-timber	Pole-timber	Seedlings and saplings	Non-stocked
Southern pine	3,000	--	400	2,600	--
Redcedar-hardwoods	600	--	--	600	--
Oak-pine	3,700	2,000	1,200	500	--
White oak	1,200	600	600	--	--
Oak-hickory	86,300	63,300	10,600	12,400	--
Central mixed hardwoods	86,200	45,100	14,000	26,900	200
Maple-beech	13,600	10,500	1,100	2,000	--
Elm-ash-cottonwood	400	--	--	400	--
All types	195,000	121,500	27,900	45,400	200

LESLIE COUNTY

Southern pine	4,700	--	400	4,300	--
Redcedar-hardwoods	800	--	--	800	--
Oak-pine	4,200	1,900	1,300	1,000	--
White oak	2,200	600	1,600	--	--
Oak-hickory	96,000	65,000	9,500	21,500	--
Central mixed hardwoods	107,400	50,600	20,300	35,700	800
Maple-beech	11,700	7,900	600	3,200	--
Elm-ash-cottonwood	500	--	--	500	--
All types	227,500	126,000	33,700	67,000	800

LETCHER COUNTY

Southern pine	2,800	--	500	2,300	--
Redcedar-hardwoods	100	--	--	100	--
Oak-pine	4,200	2,500	800	900	--
White oak	1,300	800	500	--	--
Oak-hickory	81,100	58,200	11,200	11,700	--
Central mixed hardwoods	80,600	40,500	12,000	28,100	--
Maple-beech	11,500	8,700	900	1,900	--
Elm-ash-cottonwood	600	--	--	600	--
All types	182,200	110,700	25,900	45,600	--

MARTIN COUNTY

Southern pine	1,300	--	100	1,200	--
Redcedar-hardwoods	100	--	--	100	--
Oak-pine	2,600	1,200	1,000	400	--
White oak	800	400	400	--	--
Oak-hickory	59,800	47,700	5,900	6,200	--
Central mixed hardwoods	53,200	29,600	8,500	15,100	--
Maple-beech	10,400	8,300	700	1,400	--
Elm-ash-cottonwood	200	--	--	200	--
All types	128,400	87,200	16,600	24,600	--

Table 4. -- *Area of commercial forest land by forest type and stand-size class*
Eastern Unit, Kentucky, 1963 -- Continued

PERRY COUNTY

(In acres)

Forest type	All stands	Saw-timber	Pole-timber	Seedlings and saplings	Non-stocked
Southern pine	1,800	--	200	1,600	--
Redcedar-hardwoods	500	--	--	500	--
Oak-pine	5,700	4,000	1,300	400	--
White oak	400	100	300	--	--
Oak-hickory	79,600	59,800	7,600	12,200	--
Central mixed hardwoods	82,800	41,200	19,500	21,300	800
Maple-beech	13,200	10,200	600	2,400	--
Elm-ash-cottonwood	2,200	1,900	--	300	--
All types	186,200	117,200	29,500	38,700	800

PIKE COUNTY

Southern pine	9,200	--	1,400	7,800	--
Redcedar-hardwoods	1,200	--	--	1,200	--
Oak-pine	9,900	6,100	1,900	1,900	--
White oak	5,200	2,300	2,900	--	--
Oak-hickory	170,600	109,300	24,300	37,000	--
Central mixed hardwoods	212,400	106,700	32,700	72,000	1,000
Maple-beech	18,400	12,700	400	5,300	--
Elm-ash-cottonwood	2,100	--	--	2,100	--
All types	429,000	237,100	63,600	127,300	1,000

Table 5. -- *Area of commercial forest land by forest type and site class*
Eastern Unit, Kentucky, 1963

(In acres)

Forest type	All sites	Site class (potential growth per acre per year in cubic feet)			
		120 or more	85 to 120	50 to 85	Less than 50
Southern pine	30,400	3,900	11,500	15,000	--
Redcedar-hardwoods	4,800	--	4,800	--	--
Oak-pine	38,300	10,200	19,200	8,900	--
White oak	13,400	--	6,100	7,300	--
Oak-hickory	775,000	107,800	445,500	211,200	10,500
Central mixed hardwoods	822,000	53,500	218,300	344,300	205,900
Maple-beech	104,300	4,800	45,600	42,500	11,400
Elm-ash-cottonwood	7,300	5,300	--	2,000	--
All types	1,795,500	185,500	751,000	631,200	227,800

Table 6. -- *Area of commercial forest land by forest type and stand-age class*
Eastern Unit, Kentucky, 1963

(In acres by age in years)

Forest type	All ages	Less than 9	10-19	20-29	30-39	40-49	50-59	60-79	80-99	100 or more
Southern pine	30,400	--	18,100	12,300	--	--	--	--	--	--
Redcedar-hardwoods	4,800	--	4,800	--	--	--	--	--	--	--
Oak-pine	38,300	--	5,000	6,300	15,000	--	6,900	--	5,100	--
White oak	13,400	--	--	3,100	4,200	--	6,100	--	--	--
Oak-hickory	775,000	5,100	42,300	79,300	96,500	78,600	95,800	197,400	136,500	43,500
Central mixed hardwoods	822,000	29,900	134,700	176,200	173,900	105,700	62,700	51,400	35,700	51,800
Maple-beech	104,300	5,300	11,300	--	--	15,800	14,400	10,300	25,800	21,400
Elm-ash-cottonwood	7,300	--	--	5,400	--	--	1,900	--	--	--
All types	1,795,500	40,300	216,200	282,600	289,600	200,100	187,800	259,100	203,100	116,700

Table 7. -- *Area of commercial forest land by forest type and area-condition class*
Eastern Unit, Kentucky, 1963

(In acres)

Forest type	All area conditions	Desirable	Moderate and favorable	Moderate and unfavorable	Poor but favorable	Poor and unfavorable
Southern pine	30,400	6,900	--	13,600	6,100	3,800
Redcedar-hardwoods	4,800	--	--	--	4,800	--
Oak-pine	38,300	--	6,300	--	--	32,000
White oak	13,400	--	--	--	--	13,400
Oak-hickory	775,000	10,000	67,800	129,900	9,800	557,500
Central mixed hardwoods	822,000	16,200	36,700	105,700	62,500	600,900
Maple-beech	104,300	--	--	9,800	9,500	85,000
Elm-ash-cottonwood	7,300	--	--	--	--	7,300
All types	1,795,500	33,100	110,800	259,000	92,700	1,299,900

Table 8. -- Number of growing stock trees on commercial forest land by diameter class and species group
Eastern Unit, Kentucky, 1963

(In thousand trees)

D.b.h. class (inches)	All species	Softwoods	Hardwoods
2	300,060	7,870	292,190
4	97,060	3,290	93,770
6	47,220	2,480	44,740
8	26,130	1,190	24,940
10	18,880	1,080	17,800
12	13,490	500	12,990
14	8,150	200	7,950
16	5,170	20	5,150
18	2,600	40	2,560
20	1,630	10	1,620
22	960	--	960
24+	1,720	20	1,700
All diameter classes	523,070	16,700	506,370

Table 9. -- Volume of growing stock and sawtimber on commercial forest land by ownership and species group
Eastern Unit, Kentucky, 1963

Ownership class	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<u>Thousand</u> <u>cu. ft.</u>	<u>Thousand</u> <u>cu. ft.</u>	<u>Thousand</u> <u>cu. ft.</u>	<u>Thousand</u> <u>bd. ft.*</u>	<u>Thousand</u> <u>bd. ft.*</u>	<u>Thousand</u> <u>bd. ft.*</u>
Public	26,060	800	25,260	110,620	3,300	107,320
Forest industry	86,050	1,690	84,360	442,820	6,980	435,840
Farmer and miscellaneous private	1,064,210	33,260	1,030,950	4,492,360	138,060	4,354,300
All ownerships	1,176,320	35,750	1,140,570	5,045,800	148,340	4,897,460

*International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial forest land by species and kind of material*
Eastern Unit, Kentucky, 1963

ALL COUNTIES

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	10,670	930	9,740	52,210	25,250	26,960
Other yellow pines	17,010	7,520	9,490	55,650	26,140	29,510
Hemlock	7,430	1,490	5,940	37,770	35,250	2,520
Other	640	230	410	2,710	2,710	--
Total softwoods	35,750	10,170	25,580	148,340	89,350	58,990
Hardwoods:						
Select white oak	90,190	29,550	60,640	348,390	294,320	54,070
Select red oak	66,130	16,620	49,510	321,290	282,260	39,030
Other white oak	131,130	25,320	105,810	645,070	586,800	58,270
Other red oak	193,830	40,000	153,830	935,430	858,520	76,910
Hickories	165,210	62,100	103,110	648,660	596,610	52,050
Yellow birch	540	--	540	3,200	3,200	--
Hard maple	31,610	6,730	24,880	146,040	139,700	6,340
Beech	87,890	9,680	78,210	467,870	419,820	48,050
Black walnut	6,370	2,210	4,160	26,230	19,300	6,930
Ash	16,410	4,090	12,320	72,220	66,910	5,310
Soft maple	50,250	16,580	33,670	200,310	178,710	21,600
Sweetgum	1,720	730	990	6,260	4,780	1,480
Blackgum	25,440	5,530	19,910	123,940	110,740	13,200
Yellow-poplar	174,920	71,080	103,840	600,890	524,610	76,280
Basswood	32,320	7,220	25,100	160,910	153,520	7,390
Other	66,610	31,620	34,990	190,750	171,430	19,320
Total hardwoods	1,140,570	329,060	811,510	4,897,460	4,411,230	486,230
All species	1,176,320	339,230	837,090	5,045,800	4,500,580	545,220

FLOYD COUNTY

Softwoods:						
Shortleaf pine	1,050	130	920	4,630	2,240	2,390
Other yellow pines	1,520	670	850	4,820	2,260	2,560
Hemlock	750	150	600	3,740	3,490	250
Other	70	20	50	300	300	--
Total softwoods	3,390	970	2,420	13,490	8,290	5,200
Hardwoods:						
Select white oak	9,710	3,210	6,500	37,190	31,350	5,840
Select red oak	7,380	1,830	5,550	36,080	31,630	4,450
Other white oak	13,360	2,680	10,680	65,130	59,120	6,010
Other red oak	20,690	4,170	16,520	100,180	91,740	8,440
Hickories	17,930	6,470	11,460	72,170	66,240	5,930
Yellow birch	60	--	60	340	340	--
Hard maple	3,790	770	3,020	17,820	17,010	810
Beech	9,320	1,050	8,270	49,300	44,140	5,160
Black walnut	750	250	500	3,120	2,290	830
Ash	1,970	480	1,490	8,790	8,120	670
Soft maple	5,650	1,930	3,720	22,110	19,680	2,430
Sweetgum	230	130	100	660	500	160
Blackgum	2,830	590	2,240	13,920	12,410	1,510
Yellow-poplar	20,180	8,230	11,950	69,500	60,550	8,950
Basswood	3,660	800	2,860	18,210	17,330	880
Other	7,240	3,390	3,850	21,050	19,000	2,050
Total hardwoods	124,750	35,980	88,770	535,570	481,450	54,120
All species	128,140	36,950	91,190	549,060	489,740	59,320

*International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial forest land by species and kind of material*
Eastern Unit, Kentucky, 1963 -- Continued

HARLAN COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	1,640	160	1,480	8,130	3,930	4,200
Other yellow pines	2,290	1,040	1,250	7,400	3,480	3,920
Hemlock	830	160	670	4,190	3,910	280
Other	50	10	40	280	280	--
Total softwoods	4,810	1,370	3,440	20,000	11,600	8,400
Hardwoods:						
Select white oak	12,030	3,790	8,240	47,770	40,340	7,430
Select red oak	9,690	2,280	7,410	48,610	42,670	5,940
Other white oak	20,150	3,770	16,380	100,650	91,510	9,140
Other red oak	28,000	5,590	22,410	136,670	125,360	11,310
Hickories	23,340	8,730	14,610	92,170	84,730	7,440
Yellow birch	60	--	60	330	330	--
Hard maple	4,650	1,010	3,640	21,080	20,160	920
Beech	12,600	1,100	11,500	68,920	61,800	7,120
Black walnut	860	260	600	3,770	2,770	1,000
Ash	2,280	500	1,780	10,480	9,700	780
Soft maple	6,790	2,330	4,460	26,390	23,530	2,860
Sweetgum	320	130	190	1,220	930	290
Blackgum	3,430	850	2,580	16,180	14,460	1,720
Yellow-poplar	23,630	9,670	13,960	79,600	69,460	10,140
Basswood	4,570	940	3,630	23,400	22,320	1,080
Other	9,510	4,600	4,910	26,630	23,980	2,650
Total hardwoods	161,910	45,550	116,360	703,870	634,050	69,820
All species	166,720	46,920	119,800	723,870	645,650	78,220

KNOTT COUNTY

Softwoods:						
Shortleaf pine	1,150	80	1,070	5,890	2,850	3,040
Other yellow pines	1,770	770	1,000	5,750	2,700	3,050
Hemlock	1,050	210	840	5,410	5,050	360
Other	100	40	60	420	420	--
Total softwoods	4,070	1,100	2,970	17,470	11,020	6,450
Hardwoods:						
Select white oak	10,690	3,460	7,230	41,390	34,960	6,430
Select red oak	7,500	1,850	5,650	36,600	32,140	4,460
Other white oak	15,130	2,870	12,260	74,710	67,930	6,780
Other red oak	22,570	4,580	17,990	109,570	100,520	9,050
Hickories	19,020	7,240	11,780	74,370	68,370	6,000
Yellow birch	70	--	70	400	400	--
Hard maple	3,200	690	2,510	14,860	14,200	660
Beech	10,660	1,270	9,390	56,060	50,280	5,780
Black walnut	620	230	390	2,500	1,840	660
Ash	1,680	450	1,230	7,120	6,600	520
Soft maple	5,690	1,770	3,920	23,460	20,920	2,540
Sweetgum	140	40	100	620	470	150
Blackgum	3,010	610	2,400	15,040	13,440	1,600
Yellow-poplar	18,610	7,320	11,290	65,940	57,550	8,390
Basswood	3,410	820	2,590	16,620	15,850	770
Other	7,360	3,370	3,990	21,710	19,460	2,250
Total hardwoods	129,360	36,570	92,790	560,970	504,930	56,040
All species	133,430	37,670	95,760	578,440	515,950	62,490

*International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial forest land by species and kind of material*
Eastern Unit, Kentucky, 1963 -- Continued

LESLIE COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	1,600	130	1,470	7,970	3,860	4,110
Other yellow pines	1,960	980	980	5,660	2,660	3,000
Hemlock	810	150	660	4,150	3,870	280
Other	140	90	50	300	300	--
Total softwoods	4,510	1,350	3,160	18,080	10,690	7,390
Hardwoods:						
Select white oak	11,160	3,570	7,590	43,670	36,920	6,750
Select red oak	7,940	2,050	5,890	38,140	33,540	4,600
Other white oak	15,320	2,940	12,380	75,340	68,580	6,760
Other red oak	23,230	4,810	18,420	111,930	102,820	9,110
Hickories	19,820	7,390	12,430	78,220	72,000	6,220
Yellow birch	50	--	50	300	300	--
Hard maple	3,840	780	3,060	18,000	17,230	770
Beech	9,720	1,150	8,570	50,980	45,780	5,200
Black walnut	880	330	550	3,420	2,520	900
Ash	2,080	500	1,580	9,330	8,660	670
Soft maple	5,930	2,020	3,910	23,030	20,570	2,460
Sweetgum	210	110	100	660	500	160
Blackgum	3,090	670	2,420	15,150	13,540	1,610
Yellow-poplar	21,150	8,830	12,320	71,420	62,390	9,030
Basswood	3,700	850	2,850	18,220	17,390	830
Other	7,960	3,960	4,000	21,930	19,800	2,130
Total hardwoods	136,080	39,960	96,120	579,740	522,540	57,200
All species	140,590	41,310	99,280	597,820	533,230	64,590

LETCHER COUNTY

Softwoods:						
Shortleaf pine	1,090	60	1,030	5,620	2,720	2,900
Other yellow pines	1,770	810	960	5,700	2,680	3,020
Hemlock	860	180	680	4,450	4,150	300
Other	60	10	50	340	340	--
Total softwoods	3,780	1,060	2,720	16,110	9,890	6,220
Hardwoods:						
Select white oak	9,620	3,200	6,420	36,720	31,030	5,690
Select red oak	6,740	1,720	5,020	32,340	28,420	3,920
Other white oak	14,350	2,730	11,620	70,580	64,220	6,360
Other red oak	20,790	4,290	16,500	100,450	92,230	8,220
Hickories	17,550	6,830	10,720	67,370	61,970	5,400
Yellow birch	70	--	70	440	440	--
Hard maple	2,920	650	2,270	13,300	12,720	580
Beech	9,410	1,140	8,270	49,600	44,520	5,080
Black walnut	600	220	380	2,400	1,770	630
Ash	1,520	410	1,110	6,480	6,000	480
Soft maple	5,080	1,540	3,540	21,170	18,890	2,280
Sweetgum	130	30	100	610	480	130
Blackgum	2,680	570	2,110	13,150	11,750	1,400
Yellow-poplar	17,080	6,800	10,280	59,760	52,180	7,580
Basswood	3,060	720	2,340	15,140	14,440	700
Other	6,690	3,090	3,600	19,530	17,460	2,070
Total hardwoods	118,290	33,940	84,350	509,040	458,520	50,520
All species	122,070	35,000	87,070	525,150	468,410	56,740

*International 1/4-inch rule.

Table 10. -- Volume of growing stock and sawtimber on commercial forest land by species and kind of material
 Eastern Unit, Kentucky, 1963 - Continued

MARTIN COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<u>Thousand cu. ft.</u>	<u>Thousand cu. ft.</u>	<u>Thousand cu. ft.</u>	<u>Thousand bd. ft.*</u>	<u>Thousand bd. ft.*</u>	<u>Thousand bd. ft.*</u>
Softwoods:						
Shortleaf pine	620	20	600	3,170	1,530	1,640
Other yellow pines	1,130	450	680	3,830	1,800	2,030
Hemlock	810	170	640	4,180	3,900	280
Other	60	10	50	300	300	--
Total softwoods	2,620	650	1,970	11,480	7,530	3,950
Hardwoods:						
Select white oak	7,520	2,410	5,110	29,200	24,620	4,580
Select red oak	5,180	1,240	3,940	25,300	22,180	3,120
Other white oak	10,890	1,940	8,950	54,780	49,730	5,050
Other red oak	16,510	3,190	13,320	81,270	74,440	6,830
Hickories	13,420	5,090	8,330	52,420	48,090	4,330
Yellow birch	40	--	40	260	260	--
Hard maple	2,100	470	1,630	9,630	9,190	440
Beech	7,630	940	6,690	39,960	35,780	4,180
Black walnut	410	160	250	1,610	1,170	440
Ash	1,060	280	780	4,440	4,100	340
Soft maple	3,940	1,210	2,730	16,150	14,380	1,770
Sweetgum	70	10	60	370	280	90
Blackgum	2,150	450	1,700	10,590	9,440	1,150
Yellow-poplar	11,920	4,460	7,460	43,530	37,920	5,610
Basswood	2,250	550	1,700	10,940	10,420	520
Other	5,010	2,310	2,700	14,770	13,240	1,530
Total hardwoods	90,100	24,710	65,390	395,220	355,240	39,980
All species	92,720	25,360	67,360	406,700	362,770	43,930

PERRY COUNTY

Softwoods:						
Shortleaf pine	890	80	810	4,180	2,020	2,160
Other yellow pines	2,590	850	1,740	10,410	4,890	5,520
Hemlock	730	140	590	3,690	3,450	240
Other	60	--	60	410	410	--
Total softwoods	4,270	1,070	3,200	18,690	10,770	7,920
Hardwoods:						
Select white oak	9,420	3,160	6,260	35,890	30,400	5,490
Select red oak	7,100	1,690	5,410	35,250	31,050	4,200
Other white oak	13,560	2,650	10,910	66,780	60,920	5,860
Other red oak	20,350	4,200	16,150	97,870	90,060	7,810
Hickories	17,490	6,610	10,880	68,390	63,080	5,310
Yellow birch	20	--	20	120	120	--
Hard maple	3,390	700	2,690	15,680	15,050	630
Beech	10,470	1,110	9,360	55,600	50,030	5,570
Black walnut	690	260	430	2,740	2,020	720
Ash	1,780	490	1,290	7,530	7,000	530
Soft maple	5,640	2,060	3,580	21,140	18,910	2,230
Sweetgum	180	100	80	510	390	120
Blackgum	2,630	580	2,050	12,750	11,420	1,330
Yellow-poplar	18,620	7,700	10,920	63,050	55,200	7,850
Basswood	3,780	820	2,960	18,800	17,990	810
Other	7,610	3,720	3,890	21,020	18,850	2,170
Total hardwoods	122,730	35,850	86,880	523,120	472,490	50,630
All species	127,000	36,920	90,080	541,810	483,260	58,550

*International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial forest land by species and kind of material*
Eastern Unit, Kentucky, 1963 -- Continued

PIKE COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	2,630	270	2,360	12,620	6,100	6,520
Other yellow pines	3,980	1,950	2,030	12,080	5,670	6,410
Hemlock	1,590	330	1,260	7,960	7,430	530
Other	100	50	50	360	360	--
Total softwoods	8,300	2,600	5,700	33,020	19,560	13,460
Hardwoods:						
Select white oak	20,040	6,750	13,290	76,560	64,700	11,860
Select red oak	14,600	3,960	10,640	68,970	60,630	8,340
Other white oak	28,370	5,740	22,630	137,100	124,790	12,310
Other red oak	41,690	9,170	32,520	197,490	181,350	16,140
Hickories	36,640	13,740	22,900	143,550	132,130	11,420
Yellow birch	170	--	170	1,010	1,010	--
Hard maple	7,720	1,660	6,060	35,670	34,140	1,530
Beech	18,080	1,920	16,160	97,450	87,490	9,960
Black walnut	1,560	500	1,060	6,670	4,920	1,750
Ash	4,040	980	3,060	18,050	16,730	1,320
Soft maple	11,530	3,720	7,810	46,860	41,830	5,030
Sweetgum	440	180	260	1,610	1,230	380
Blackgum	5,620	1,210	4,410	27,160	24,280	2,880
Yellow-poplar	43,730	18,070	25,660	148,090	129,360	18,730
Basswood	7,890	1,720	6,170	39,580	37,780	1,800
Other	15,230	7,180	8,050	44,110	39,640	4,470
Total hardwoods	257,350	76,500	180,850	1,089,930	982,010	107,920
All species	265,650	79,100	186,550	1,122,950	1,001,570	121,380

*International 1/4-inch rule.

Table 11. -- Volume of growing stock trees on commercial forest land by species and diameter class
Eastern Unit, Kentucky, 1963

(In thousand cubic feet)

Species	All diameters	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0 and larger
Softwoods:											
Shortleaf pine	10,670	490	440	3,690	2,370	2,710	--	970	--	--	--
Other yellow pines	17,010	3,910	3,610	4,060	2,460	1,470	750	750	--	--	--
Hemlock	7,430	490	1,000	1,240	1,790	--	--	430	570	--	1,910
Other	640	230	--	--	--	410	--	--	--	--	--
Total softwoods	35,750	5,120	5,050	8,990	6,620	4,590	750	2,150	570	--	1,910
Hardwoods:											
Select white oak	90,190	8,450	8,310	12,790	16,670	11,670	11,980	7,980	5,920	2,080	4,340
Select red oak	66,130	2,530	5,730	8,360	10,820	5,380	5,740	5,890	4,570	3,800	13,310
Other white oak	131,130	5,100	8,380	11,840	16,060	17,460	11,240	9,620	8,380	10,410	32,640
Other red oak	193,830	7,860	10,930	21,210	26,350	35,650	35,240	19,460	11,530	7,060	18,540
Hickories	165,210	18,640	20,290	23,170	28,070	21,450	18,490	9,520	10,000	6,200	9,380
Yellow birch	540	--	--	--	--	--	--	--	540	--	--
Hard maple	31,610	1,150	2,110	3,470	3,700	3,820	3,790	1,390	2,190	2,260	7,730
Beech	87,890	1,690	3,490	4,500	5,970	8,780	10,160	11,100	7,760	7,060	27,380
Black walnut	6,370	630	640	940	400	1,320	1,810	630	--	--	--
Ash	16,410	1,800	740	1,550	3,860	1,710	1,950	1,380	--	460	2,960
Soft maple	50,250	3,140	5,760	7,680	5,680	4,610	4,620	3,970	3,430	3,870	7,490
Sweetgum	1,720	230	220	280	260	390	--	--	--	340	--
Blackgum	25,440	1,280	1,170	3,080	3,130	3,190	5,640	3,580	2,300	1,520	550
Yellow-poplar	174,920	18,940	25,430	26,710	31,810	21,700	14,840	9,920	5,870	6,310	13,390
Basswood	32,320	2,410	1,870	2,940	3,480	5,490	5,610	900	6,440	720	2,460
Other	66,610	9,960	13,220	8,440	11,970	5,060	6,440	3,650	3,980	480	3,410
Total hardwoods	1,140,570	83,810	108,290	136,960	168,230	147,680	137,550	88,990	72,910	52,570	143,580
All species	1,176,320	88,930	113,340	145,950	174,850	152,270	138,300	91,140	73,480	52,570	145,490

Table 12. -- Volume of sawtimber on commercial forest land by species and diameter class
Eastern Unit, Kentucky, 1963

(In thousand board feet*)

Species	All diameters	9.0-10.9**	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0 and larger
Softwoods:									
Shortleaf pine	52,210	17,700	12,430	18,200	--	3,880	--	--	--
Other yellow pines	55,650	22,120	13,300	9,340	5,230	5,660	--	--	--
Hemlock	37,770	5,970	10,040	--	--	2,820	4,320	--	14,620
Other	2,710	--	--	2,710	--	--	--	--	--
Total softwoods	148,340	45,790	35,770	30,250	5,230	12,360	4,320	--	14,620
Hardwoods:									
Select white oak	348,390	--	88,640	63,130	67,250	49,070	37,640	13,620	29,040
Select red oak	321,290	--	60,350	32,350	33,940	38,890	29,990	26,180	99,590
Other white oak	645,070	--	80,240	94,720	66,120	56,950	52,870	65,050	229,120
Other red oak	935,430	--	139,020	208,830	211,730	125,100	75,830	47,710	127,210
Hickories	648,660	--	167,970	130,550	114,990	60,410	65,320	41,780	67,640
Yellow birch	3,200	--	--	--	--	--	3,200	--	--
Hard maple	146,040	--	16,240	19,850	21,740	8,500	12,370	15,180	52,160
Beech	467,870	--	26,090	41,520	53,220	66,850	47,050	44,620	188,520
Black walnut	26,230	--	1,580	8,130	12,170	4,350	--	--	--
Ash	72,220	--	20,890	9,310	11,310	7,810	--	2,840	20,060
Soft maple	200,310	--	26,480	25,200	24,030	23,810	21,180	24,630	54,980
Sweetgum	6,260	--	1,480	2,480	--	--	--	2,300	--
Blackgum	123,940	--	18,050	17,420	36,290	22,240	15,400	10,610	3,930
Yellow-poplar	600,890	--	171,940	118,560	87,570	60,020	37,510	39,360	85,930
Basswood	160,910	--	20,380	32,810	37,200	5,880	42,480	4,860	17,300
Other	190,750	--	57,200	24,680	38,610	22,290	23,560	2,880	21,530
Total hardwoods	4,897,460	--	896,550	829,540	816,170	552,170	464,400	341,620	997,010
All species	5,045,800	45,790	932,320	859,790	821,400	564,530	468,720	341,620	1,011,630

*International 1/4-inch rule.

**Softwoods only.

Table 13. -- *Net annual growth on commercial forest land by species and kind of material*
Eastern Unit, Kentucky, 1963

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	720	250	470	3,020	1,600	1,420
Other yellow pines	1,420	930	490	7,400	3,220	4,180
Hemlock	370	160	210	1,990	1,630	360
Other	20	20	--	40	40	--
Total softwoods	2,530	1,360	1,170	12,450	6,490	5,960
Hardwoods:						
Select white oak	3,930	2,400	1,530	18,210	13,550	4,660
Select red oak	2,930	1,620	1,310	16,570	12,710	3,860
Other white oak	3,270	1,780	1,490	18,360	14,920	3,440
Other red oak	7,780	3,590	4,190	44,840	37,060	7,780
Hickories	5,910	3,880	2,030	27,680	23,060	4,620
Yellow birch	10	--	10	40	40	--
Hard maple	1,050	580	470	5,440	4,750	690
Beech	1,220	310	910	8,910	7,280	1,630
Black walnut	400	280	120	2,040	1,630	410
Ash	390	260	130	2,930	2,080	850
Soft maple	2,500	1,640	860	14,080	12,070	2,010
Sweetgum	190	160	30	410	80	330
Blackgum	910	450	460	5,270	4,350	920
Yellow-poplar	16,170	10,360	5,810	72,660	51,500	21,160
Basswood	1,840	850	990	9,430	8,700	730
Other	3,720	2,670	1,050	13,290	10,230	3,060
Total hardwoods	52,220	30,830	21,390	260,160	204,010	56,150
All species	54,750	32,190	22,560	272,610	210,500	62,110

*International 1/4-inch rule.

Table 14. -- *Net annual growth on commercial forest land by county and species group*
Eastern Unit, Kentucky, 1963

County	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Floyd	5,990	270	5,720	30,230	1,150	29,080
Harlan	7,580	360	7,220	37,730	1,660	36,070
Knott	5,990	260	5,730	30,320	1,340	28,980
Leslie	6,630	290	6,340	32,380	1,130	31,250
Letcher	5,600	260	5,340	27,950	1,460	26,490
Martin	4,030	170	3,860	20,850	910	19,940
Perry	5,890	290	5,600	29,680	1,610	28,070
Pike	13,040	630	12,410	63,470	3,190	60,280
Total	54,750	2,530	52,220	272,610	12,450	260,160

*International 1/4-inch rule.

Table 15. -- *Timber cut from commercial forest land by species and kind of material*
Eastern Unit, Kentucky, 1962

Species	Growing stock			Sawtimber
	Total	Poletimber trees	Sawtimber trees	Total
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>
Softwoods:				
Shortleaf pine	440	180	260	1,350
Other yellow pines	50	--	50	260
Hemlock	40	--	40	220
Other	20	20	--	30
Total softwoods	550	200	350	1,860
Hardwoods:				
Select white oak	1,490	590	900	5,280
Select red oak	1,160	60	1,100	7,160
Other white oak	1,470	220	1,250	8,040
Other red oak	540	30	510	3,320
Hickories	1,140	490	650	3,960
Yellow birch	--	--	--	--
Hard maple	1,210	80	1,130	7,650
Beech	1,160	50	1,110	7,650
Black walnut	120	--	120	840
Ash	120	10	110	760
Soft maple	90	--	90	550
Sweetgum	--	--	--	--
Blackgum	90	--	90	590
Yellow-poplar	1,370	40	1,330	9,150
Basswood	300	--	300	1,950
Other	260	10	250	1,670
Total hardwoods	10,520	1,580	8,940	58,570
All species	11,070	1,780	9,290	60,430

*International 1/4-inch rule.

Table 16. -- *Timber cut from commercial forest land by ownership and species group*
Eastern Unit, Kentucky, 1962

Ownership class	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Public	210	10	200	1,310	20	1,290
Forest industry	780	--	780	5,020	--	5,020
Farmer and miscellaneous private	10,080	540	9,540	54,100	1,840	52,260
All ownerships	11,070	550	10,520	60,430	1,860	58,570

*International 1/4-inch rule.

Table 17. -- *Net annual desirable cut on commercial forest land by species and kind of material*
Eastern Unit, Kentucky, 1963

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	190	--	190	1,010	1,010	--
Other yellow pines	60	50	10	50	30	20
Hemlock	200	40	160	930	910	20
Other	30	--	30	210	210	--
Total softwoods	480	90	390	2,200	2,160	40
Hardwoods:						
Select white oak	3,830	1,010	2,820	16,460	16,330	130
Select red oak	2,830	540	2,290	14,900	14,490	410
Other white oak	4,260	610	3,650	22,490	21,740	750
Other red oak	6,450	780	5,670	35,000	34,630	370
Hickories	5,820	1,790	4,030	26,000	25,900	100
Yellow birch	70	--	70	440	440	--
Hard maple	1,720	260	1,460	8,870	8,870	--
Beech	4,330	370	3,960	24,090	23,620	470
Black walnut	110	10	100	630	630	--
Ash	700	60	640	3,960	3,960	--
Soft maple	1,870	390	1,480	9,280	9,180	100
Sweetgum	50	--	50	360	360	--
Blackgum	1,400	140	1,260	8,220	8,220	--
Yellow-poplar	4,900	1,350	3,550	21,700	21,230	470
Basswood	1,370	240	1,130	7,040	7,040	--
Other	2,880	1,130	1,750	9,690	9,650	40
Total hardwoods	42,590	8,680	33,910	209,130	206,290	2,840
All species	43,070	8,770	34,300	211,330	208,450	2,880

*International 1/4-inch rule.

Table 18. -- *Net annual desirable cut on commercial forest land by county and species group*
Eastern Unit, Kentucky, 1963

County	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Floyd	4,690	50	4,640	23,000	200	22,800
Harlan	6,100	60	6,040	30,310	290	30,020
Knott	4,890	60	4,830	24,230	260	23,970
Leslie	5,150	60	5,090	25,040	270	24,770
Letcher	4,470	50	4,420	22,000	240	21,760
Martin	3,390	30	3,360	17,030	170	16,860
Perry	4,650	60	4,590	22,690	280	22,410
Pike	9,730	110	9,620	47,030	490	46,540
Total	43,070	480	42,590	211,330	2,200	209,130

*International 1/4-inch rule.

THE AUTHORS



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